

IN THE CLAIMS:

1. (currently amended) A ~~high-g shock-producing~~ mechanical shock producing device for testing a sample specimen comprising:

~~a beam~~ beam ~~having~~ a predetermined length ~~having~~ and a first end and a second end, at least one of said first beam end and said second beam end ~~having~~ a substantially rigidly fixed position, with the specimen mounted ~~thereon~~ on ~~said~~ beam at a position ~~remote~~ separated by a distance ~~from the one end~~ the ~~fixed~~ position; and

~~a shock column positioned to apply a force to~~ said beam, ~~the force causing said beam to bend in a direction transverse to the length, said column configured to have~~ comprising a buckling failure formed ~~therein~~, said buckling failure ~~configured to cause~~ said column ~~to buckle when a specific force is applied to~~ said beam through ~~said column~~ ~~when exposed to a pressure which is sufficient to bend~~ ~~said beam an amount to provide the desired high-g force to the specimen, the buckling failure causing the force to be suddenly removed from~~ ~~said beam so as to release~~ said beam and produce ~~the high-g shock on the specimen.~~

2. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 1 wherein said column comprises:

a top cap;

a bottom cap; and

~~a column portion extending between said top cap and said bottom cap, said column portion comprising a feature to induce a~~ said buckling failure ~~in~~ said column ~~at a specific pressure.~~

3. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said top cap, said bottom cap, and said column portion comprise threaded

end portions, said top cap and said bottom cap ~~threading onto~~ configured to thread onto the threaded portion of said column portion.

4. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said top cap and said bottom cap comprise deformable ridges within a recess therein, said deformable ridges utilized in press fitting said top cap and said bottom cap to said column portion.

5. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said ~~column portion~~ said buckling failure comprises a notch formed near a center of the length of said column portion, said notch sized to ~~provide a buckling feature at~~ cause said column portion to fail when a specific force is applied through said column portion pressure.

6. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said ~~column portion~~ said buckling failure comprises a reduced cross-section formed near a center of the length of said column portion, said reduced cross-section sized to ~~provide a buckling feature at~~ cause said column portion to fail when a specific force is applied through said column portion pressure.

7. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said column portion comprises:

end portions; and

an enlarged cross-section extending between said end portions, said end portions and said enlarged cross-section forming notches where said end portions extend into said top cap and said bottom cap, said enlarged cross-section sized to ~~provide a buckling feature at~~ cause said column portion to fail when a specific force is applied through said column portion pressure.

8. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said column portion comprises a ceramic material.

9. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said beam comprises at least one of aluminum and titanium.

10. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said beam comprises an I-beam configuration.

11. (currently amended) A ~~high-g~~ mechanical shock-producing device according to Claim 2 wherein said top cap and said bottom cap comprise a metal.

12. (currently amended) A method of suddenly for releasing a beam of a ~~high-g~~ mechanical force testing apparatus, said method comprising:

configuring selecting a shock column with a buckling failure point, the buckling failure point being at a pressure;

inserting the shock column between a beam rigidly mounted at least at one end and a pressure producing device; and

applying a pressure to the through the shock column to bend the beam to a desired point, the pressure needed to bend the beam to the desired point being equal to the buckling failure point pressure of the shock column.

13. (currently amended) A method according to Claim 12 wherein configuring selecting a shock column with a buckling failure point comprises configuring selecting the shock column with a notch formed near a center of the length of the shock column, the notch sized to provide the buckling failure at a pressure equal to the pressure needed to bend the beam to the desired point.

14. (currently amended) A method according to Claim 12 wherein configuring selecting a shock column with a buckling failure point comprises configuring selecting the shock column with a reduced cross-section formed near a center of the length of the shock column, the reduced cross-section sized to provide the buckling failure at a pressure equal to the pressure needed to bend the beam to the desired point.

15. (currently amended) A method according to Claim 12 wherein configuring selecting a shock column with a buckling failure point comprises configuring selecting the shock column with an enlarged cross-section extending between end portions of the shock column, the end portions and enlarged cross-section forming notches where the end portions extend into a top cap and a bottom cap, said enlarged cross-section sized to provide the buckling failure at a pressure equal to the pressure needed to bend the beam to the desired point.

16. (currently amended) A shock column for a ~~high-g tester~~ mechanical testing device comprising:

a top cap;

a bottom cap; and

a column portion extending between said top cap and said bottom cap, said column portion configured to buckle when a specific pressure is applied between said top cap and said bottom cap.

17. (original) A shock column according to Claim 16 wherein said column portion comprises a notch formed near a center of the length of said column portion, said notch sized to cause said column portion to buckle at a specific pressure.

18. (original) A shock column according to Claim 16 wherein said column portion comprises a reduced cross-section formed near a center of the length of said column portion, said reduced cross-section sized to cause said column portion to buckle at a specific pressure.

19. (original) A shock column according to Claim 16 wherein said column portion comprises:

end portions; and

an enlarged cross-section extending between said end portions, said end portions and said enlarged cross-section forming notches where said end portions extend into said top cap and said bottom cap, said enlarged cross-section sized to cause said column portion to buckle at a specific pressure.

20. (original) A shock column according to Claim 16 wherein said top cap, said bottom cap, and said column portion comprise threaded end portions, said top cap and said bottom cap threading onto said threaded portion of said column portion.

21. (original) A shock column according to Claim 16 wherein said top cap and said bottom cap comprise deformable ridges within a recess therein, said deformable ridges utilized in press fitting said top cap and said bottom cap to said column portion.

22. (currently amended) A ~~high-g mechanical~~ shock producing device for testing a specimen comprising:

a beam having a first end and a second end, and capable of flexing ~~without permanent deformation~~, said beam rigidly mounted at said first end and said second end;

a fastener for mounting the specimen ~~atop~~ said on said beam proximate the center thereof;

a shock column comprising a top cap, a bottom cap, and a column portion extending therebetween, and positioned such that said top cap ~~bears~~ is against said beam, said column portion ~~comprising a feature which causes said column portion~~ configured to buckle at a specified pressure; and

a hydraulic ram positioned to produce an upwardly directed force on said bottom cap of said column to cause said beam to bend to a position where the pressure is sufficient to cause said column portion to buckle, the buckling causing removal of the upwardly directed force thereby allowing said beam to ~~suddenly unbend and apply a g force~~ return to an unbent position thereby applying a mechanical force to the specimen.

23. (currently amended) A high-g shock producing device according to Claim 23 wherein said top cap ~~bears against~~ is positioned near an approximate center of said beam.

24. (original) A high-g shock producing device according to Claim 23 wherein said beam comprises an I- beam.

PLEASE ADD THE FOLLOWING NEW CLAIM:

25. (new) A mechanical shock-producing device according to Claim 1 wherein the specific force applied to said beam to initiate said buckling failure is equal to a force needed to bend said beam an amount to result in application of the desired mechanical force to the specimen.